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09/782,169

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Shoji Hara

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07/08/2008

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EXAMINER

TALBOT, BRIAN K

ART UNIT

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/782,169
Filing Date: February 14, 2001
Appellant(s): HARA ET AL.

Stephen Adrian
For Appellant

EXAMINER'S ANSWER

1. This is in response to the appeal brief filed April 9, 2008 appealing from the Office action mailed February 15, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

It is noted that Affidavits were filed and considered, however, the rejection was maintained by the Examiner. It is noted that the Affidavits were not specifically referred to in the arguments contained in the Appeal Brief.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Art Unit: 1792

JP 62-060640	Kuromaru et al.	3-1987
JP 11-240106	Yamaguchi	9-1999
5,156,710	Chen et al.	10-1992
5,741,598	Shiotani et al.	4-1998
5,681,443	Ameen et al.	10-1997

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

Claims 1-9, 13 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (5,156,710) or Shiotani et al. (5,741,598) in combination with JP 54-066966.

Chen et al. (5,156,710) or Shiotani et al. (5,741,598) teach applying a metal layer to a polyimide layer and heating to form a conductor layer atop the polyimide layer. The polyimide layer is formed by imidizing a polyamic acid. The metal layer can be applied by a variety of ways but laminating a metal foil is most preferred.

Shiotani et al. (5,741,598) further teach that it is conventional in the art to form the metal layer atop the polyimide film by plating (col. 1, lines 27-30.) The laminate is formed by applying the metal layer to the imide layer and heating by pressure.

Chen et al. (5,156,710) or Shiotani et al. (5,741,598) fail to teach heating the said laminate.

JP 54-066966 teaches manufacturing a composite sheet. A metal foil and a heat-resistant polymer are combined to form a laminate and then the laminate is aged at a temperature and atmosphere that does not result in reduced adhesion strength (abstract).

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified the Chen et al. (5,156,710) or Shiotani et al. (5,741,598) process by performing a subsequent ageing step as evidenced by JP 54-066966 with the expectation of achieving a superior bond between the polyimide and the metal layers.

Claims 1, 3-11,13 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-60640 or JP 11-240,106 in combination with JP 54-066966.

JP 62-60640 teaches sputtering or vapor depositing a metal atop a thermoplastic polyimide sheet and heating to form the laminated film. JP 62-60640 forms the laminates in a continuously mode of extrusion forming. Not laminated with metal, the resin may be plated with metal through chemical plating, electroplating, sputtering or vapor deposition to produce the laminates of the invention (pg. 7 of translation filed 1/09/04)

JP 11-240,106 teaches applying a metal or metal oxide layer on a polyimide layer by vapor deposition or sputtering (abstract).

JP 62-60640 or JP 11-240,106 fails to teach heating the said laminate.

JP 54-066966 teaches manufacturing a composite sheet. A metal foil and a heat-resistant polymer are combined to form a laminate and then the laminate is aged at a temperature and atmosphere that does not result in reduced adhesion strength (abstract).

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified the JP 62-60640 or JP 11-240,106 process by performing a subsequent ageing step as evidenced by JP 54-066966 with the expectation of achieving a superior bond between the polyimide and the metal layers.

With respect to claims 19 and 20 that recite a peel strength, it is the Examiner's position that the claimed peel strength would be achieved by the combination of prior art as the processes and materials are similar.

With respect to claims 8 and 9, the claims recite a using pressure with the heating step. While the Examiner acknowledges the fact that the prior art fails to teach pressure in the subsequent heating step, the prior art does teach utilizing pressure in forming the laminate that improves adhesion between the polyimide and the metal layer. Hence, it is the Examiner's position that one skilled in the art would have had a reasonable expectation of achieving similar success, i.e. improved adhesion, with the aid of pressure in the subsequent heating step as evidenced by the heating/pressure step in forming the laminate.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-60640, Chen et al. (5,156,710), Shiotani et al. (5,741,598) or JP 11-240,106 in combination with JP 54-066966 further in combination Ameen et al. (5,681,443).

JP 62-60640, Chen et al. (5,156,710), Shiotani et al. (5,741,598) or JP 11-240,106 in combination with JP 54-066966 fail to teach wet coating a metal atop the dry coated metal.

Ameen et al. (5,681,443) teaches forming printed circuits whereby a metal flash layer is applied to a polymer substrate by vapor deposition or sputtering and subsequently a metal layer is applied to the flash metal by electrodeposition.

Therefore, it would have been within the skill of one practicing in the art to have modified JP 62-60640, Chen et al. (5,156,710), Shiotani et al. (5,741,598) or JP 11-240,106 in combination with JP 54-066966 by forming a second metal coating by wet plating as evidenced by Ameen et al. (5,681,443) with the expectation of achieving success, i.e. a thicker coating.

(10) Response to Argument

As no definition of a “laminate” is found in the specification, the Examiner has interpreted the term “laminate” to be “a uniting of two surfaces”.

Appellant argued that the prior art teaches applying a metal foil on a polyimide film and that this does not constitute a laminate, and hence, the heat pressing step would not meet the claimed heating step.

As detailed in a previous Office Action, the Examiner has taken the position that upon heat pressing the metal foil and the polyimide film at one point, a laminate would be formed and the heat pressing would continue and constitute the claimed heating step. A laminate is formed when two layers are united, and this would occur throughout the heat pressing step. One skilled in the art would not stop the heat pressing step once this “uniting occurs”. The heat pressing would continue, and therefore, an increase in adhesion would be produced sequentially with the heat pressing step. It has been well settled that generally, no invention is involved in the broad

concept of performing simultaneously operations which have previously been performed in sequence. *In re Tatincloux*, 108 USPQ 125.

Appellant argued that the prior art teaches forming a metal film on the polyimide film but that it also does not constitute a laminate.

The Examiner disagrees. The prior art teaches forming the metal layer atop the polyimide film by a variety of dry plating processes including sputtering, chemical plating, vapor deposition. This is the same or similar process as claimed in claims 10 and 11. Hence, the Examiner has taken the position that the process would produce a laminate as is done in the prior art process. The subsequent heating step is taught by JP 54-066966.

Appellant argued that the prior art (JP 54-066966) teaches a ripening step which decreases the adhesion strength and not enhancing as claimed.

While the Examiner acknowledges the fact that JP 54-066966 teaches a decrease in adhesion with a ripening step, the JP 54-066966 reference also teaches the ripening step performed in an inert atmosphere to prevent this reduction of adhesion. Furthermore, since the claims do not recite a “particular amount” of enhanced adhesion, this limitation would be met by a microscopically small amount. It is the Examiner's position that while the JP 54-066966 does not recite a “positive” amount of increased adhesion, the fact that the heating step was found to negate the decrease in adhesion would provide support for no adhesion loss and/or a small increase.

Appellant argued that the prior art (JP 54-066966) teaches forming a polyimide layer on a metal layer and not a metal layer on a polyimide layer.

The claims are not commensurate in scope with the argument. The claims as written are not limited as forming a metal layer on a polyimide layer. The claims recite "forming a conductor layer directly adhering to one surface of a polyimide film". All the claims require is forming a metal layer and a polyimide layer that are directly adhered to one another. Presuming the claims are limited as argued by Appellant, the Examiner has taken the position that one skilled in the art would have had a reasonable expectation of a success regardless of whether the metal layer is applied to the polyimide layer or vice versa. Each way would constitute a metal layer "directly adhering" to a polyimide layer.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Brian K Talbot/

Brian K. Talbot

Primary Examiner, Art Unit 1792

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